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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/476,241	12/30/1999	TAKAHIRO KIMOTO	P/1909-122	7511

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EXAMINER

AN, SHAWN S

ART UNIT	PAPER NUMBER
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2613

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/476,241

Applicant(s)

KIMOTO, TAKAHIRO

Examiner

Shawn S An

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-26 is/are pending in the application.
- 4a) Of the above claim(s) 5-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,12 and 14-26 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Restriction/Election

1. Applicant's election with traverse of species III corresponding to claims 1-2, 4, and 12-26 in the reply filed on 9/22/2004 is acknowledged.

The Examiner agrees with the Applicant's traversal. Therefore, the elected claims 1-2, 4, and 12-26 will be examined altogether. The claims 5-11 are now considered as non-elected claims, thereby not entering the amended claims (5-11) previously filed.

Response to Amendment

2. As per Applicant's instructions as filed on 5/25/2004, claims 1, and 14-18 have been amended, claim 3 has been canceled, and claims 19-26 have been newly added.

Response to Remarks/Arguments

3. Applicant's arguments with respect to claims 1 and 14-18 have been considered but are moot in view of the new ground(s) of rejection.

Furthermore, as per Applicant's arguments with respect to claims 4 and 12, please refer to rejection paragraphs 9 and 10, respectively.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2, 14-18, 21-22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al (6,125,144) in view of Lin (6,192,148 B1).

Regarding claims 1-2 and 14-18, Matsumura et al discloses a moving picture encoding apparatus, comprising:

block significance determining means (Fig. 6, 304) for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means (Fig. 1, 106) for generating a refresh map signal representing priority of refresh for each block;

adaptive refresh signal generating means (107) for referring to refresh priority by the map signal and an allowed number of blocks for refresh processing in a frame to be encoded, and generating a refresh signal for the block; and

moving picture encoding means (102) for generating the block information of an error between frames and a quantity of motion generated during block encoding operation for conducting an intra-frame encoding operation for a block specified by the refresh signal and executing an intra-frame encoding operation or an inter-frame encoding operation for a block not specified by the refresh signal (col. 7, lines 8-19);

wherein the block significance determining means calculates for each block a block feature (SAD, Variance) (col. 7, lines 52-63).

Matsumura et al does not specifically disclose well known concept of calculating a block feature that indicates a picture quality other than a variance of each block.

However, Lin teaches an encoding processor for calculating a block feature that indicates a picture quality (luminance/chrominance mean absolute difference) other than a variance of each block (abs.).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a moving picture encoding apparatus as taught by Matsumura et al to

incorporate the conventionally well known concepts as above as taught by Lin as an alternative way to compute an accurate/precise assessment of the activity (quality) of the blocks.

Regarding claim 2, Matsumura et al discloses comparing the block feature with one or more threshold values and thereby generating first block significance for each block (col. 12, lines 39-49).

Regarding claims 21-22 and 24, Lin discloses a difference between power of a luminance/chrominance signal of each block and an adjacent block, and an absolute value of a color difference signal (abs.).

6. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al and Lin as applied to claim 1 above, and further in view of Asamura et al (5,583,573).

Regarding claims 19-20, Matsumura et al does not particularly disclose computing a distance between a maximum and a minimum value of luminance/chrominance signals in each block.

However, Asamura et al teaches a video encoder comprising computing a distance between a maximum and a minimum value of luminance/chrominance signals in each block (col. 12, lines 36-51).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a moving picture encoding apparatus as taught by Matsumura et al to incorporate the conventionally well known concept as above as taught by Asamura et al as an alternative way to determine an accurate/precise assessment of the activity (quality) of the blocks.

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al and Lin as applied to claim 1 above, and further in view of Malvar (4,754,492).

Regarding claim 23, Matsumura et al does not particularly disclose computing a weighted sum of coefficients signals after a frequency conversion according to a visual model.

However, Malvar teaches an encoder block processing comprising computing a weighted sum of coefficients signals after a frequency conversion (col. 4, lines 25-40).

Furthermore, utilizing a visual model is conventionally well known in the art.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a moving picture encoding apparatus as taught by Matsumura et al to incorporate the conventionally well known concept as above as taught by Malvar so as to compute a weighted sum of coefficients signals according to a visual model as an alternative way to determine an accurate/precise assessment of the activity (quality) of the blocks, thereby minimizing blocking artifacts.

8. Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al (6,125,144).

Regarding claims 25-26, Matsumura et al does not particularly disclose computing a weighted sum of a variation in luminance and color signals of each block and power of an edge component of the luminance and color signal in each block obtained by an edge extracting filter.

However, the Examiner takes official notice that a block feature comprising/computing a weighted sum of a variation in luminance and color signals of each block and power of an edge component of the luminance and color signals in each block obtained by an edge extracting filter are conventionally well known features for determining a block characteristics/quality.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a moving picture encoding apparatus as taught by Matsumura et al to incorporate the conventionally well known features as discussed above as an alternative way to determine an accurate/precise assessment of the activity (quality) of the blocks.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al (6,125,144) in view of Watanabe et al (4,984,076).

Regarding claim 4, Matsumura et al discloses a moving picture encoding apparatus, comprising:

block significance determining means (Fig. 6, 304) for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means (Fig. 1, 106) for generating a refresh map signal representing priority of refresh for each block;

adaptive refresh signal generating means (107) for referring to refresh priority by the map signal and an allowed number of blocks for refresh processing in a frame to be encoded, and generating a refresh signal for the block; and

moving picture encoding means (102) for generating the block information of an error between frames and a quantity of motion generated during block encoding operation for conducting an intra-frame encoding operation for a block specified by the refresh signal and executing an intra-frame encoding operation or an inter-frame encoding operation for a block not specified by the refresh signal (col. 7, lines 8-19);

wherein the block significance determining means calculates for each block a block feature (SAD) (col. 7, lines 52-63), and comparing the block feature with one or more threshold values and thereby generating first block significance for each block (col. 12, lines 39-49);

Matsumura et al does not specifically disclose well known concept of calculating a block feature which is a quantity indicating power of a signal obtained by passing intra-block signals through a band-pass filter.

However, Watanabe et al teaches conventionally well known concept of a quantity indicating power of a signal obtained by passing the intra-block signals through a band-pass filter (col. 12, lines 28-50).

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a moving picture encoding apparatus as taught by Matsumura et al to incorporate the conventionally well known concepts as above as taught by the Watanabe et al as an alternative way to compute an accurate/precise assessment of the activity (quality) of the blocks.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumura et al (6,125,144) in view of Ohki (4,651,206).

Regarding claim 12, Matsumura et al discloses a moving picture encoding apparatus, comprising:

block significance determining means (Fig. 6, 304) for determining block significance for each block as an encoding unit of the input image signals according to predetermined evaluation indices;

map generating means (Fig. 1, 106) for generating a refresh map signal representing priority of refresh for each block;

adaptive refresh signal generating means (107) for referring to refresh priority by the map signal and an allowed number of blocks for refresh processing in a frame to be encoded, and generating a refresh signal for the block; and

moving picture encoding means (102) for generating the block information of an error between frames and a quantity of motion generated during block encoding operation for conducting an intra-frame encoding operation for a block specified by the refresh signal and executing an intra-frame encoding operation or an inter-frame encoding operation for a block not specified by the refresh signal (col. 7, lines 8-19).

Matsumura et al fails to disclose refresh history determining means for temporarily keeping therein the refresh map signal referring to history of the refresh map signal.

However, Ohki teaches conventional refresh history determining means (Fig. 4, 21) for temporarily keeping therein the refresh map signal referring to history of the refresh map signal.

Therefore, it would have been obvious to a person of ordinary skill in the relevant art employing a moving picture encoding apparatus as taught by Matsumura et al to incorporate the refresh history determining means as taught by Ohki so that the Ohki's refresh history determining means can easily include a map history memory which refers to the refresh map signal from the Matsumura's map generating means and the refresh signal from the Matsumura's adaptive refresh signal generating means, thereby updating history, obviously beginning at a start of encoding processing, of the refresh map, and storing the refresh map temporarily for keeping therein the refresh map signal referring to history of the refresh map signal in order to improve the overall quality of the video images in an encoding process.

Allowable Subject Matter

11. Claim 13 is objected to as being dependent upon a rejected base claim 12, but would be allowable:

if claim 13 is rewritten in independent form including all of the limitations of the base claim 12 and any intervening claims.

Dependent claim 13 recites the novel feature of means wherein the refresh history determining means includes:

a refresh signal history memory for storing therein history of the refresh signal;
and

a map modifying section for referring to the map history stored in the map history memory and the refresh history stored in the refresh signal history memory and thereby modifying forced refresh priority indicated by the refresh map signal from the map generating means.

The art of record fails to anticipate or make obvious the novel feature as specified directly above. Accordingly, if the amendments are made to the claims listed above, and if rejected claims are canceled, the application would be placed in condition for allowance.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn S An whose telephone number is 703-305-0099. The examiner can normally be reached on Flex hours (10).

14. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2613

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SSA

Primary Patent Examiner

2/4/05